



---

# **2021 Astrophysics Medium Explorers (MIDEX), and Mission of Opportunity (MO) Preproposal Conference**

## **Conference Goals and Overview of the Solicitations**

Linda S. Sparke  
Astrophysics Explorers Program Scientist  
NASA Headquarters  
September 14, 2021



## Conference Goals

2021 Astrophysics Explorers  
Preproposal Conference

### Goals today are to:

- Provide an overview of the 2021 Astrophysics MIDEX and Mission of Opportunity (MO) solicitations
- Provide an overview of the evaluation, categorization, and selection process for both solicitations
- Address questions



## Questions

2021 Astrophysics Explorers  
Preproposal Conference

- 
- Answers to questions already received are included in presentations and/or will be addressed on the Q&A web site.
  - Questions submitted today will be addressed as time permits and as appropriate answers can be generated.
  - At this meeting, please submit questions via the WebEx chat (preferred) or wait till lines are un-muted for phone questions. Questions in writing help us to best understand your intent.
  - Questions may also be sent to Linda Sparke at: **[linda.s.sparke@nasa.gov](mailto:linda.s.sparke@nasa.gov)**
  - Questions may be submitted until 21 days before the proposal due date. Questions and answers will be posted on the MIDEX and MO pages at the Astrophysics Explorers Acquisition site:

**<http://explorers.larc.nasa.gov/APMIDEX2021/>**



# Agenda

2021 Astrophysics Explorers  
Preproposal Conference

Topic	Start (Eastern)	Duration	Presenter
1) Conference goals and overview 2) Overview: Evaluation, Categorization, & Selection 3) Science Evaluation	10:00 AM	1:00	Linda Sparke Program Scientist, Astrophysics Division Science Mission Directorate (NASA/HQ)
break	11:00 AM	0:15	
TMC Evaluation	11:15 AM	0:30	Odilyn Luck/Behzad Raiszadeh Astrophysics Explorers Acquisition Manager Science Office for Mission Assessments (NASA/LaRC)
Explorers Program Office Overview	11:45 AM	0:15	Greg Frazier; Explorers Program Office (NASA/GSFC)
break	12:00 PM	0:30	
Mission Operations and Communications Services	12:30 PM	0:20	John Hudiberg, Mission Integration and Commitment Manager, SCan, Network Services Division, HEOMD (NASA/HQ)
International Participation	12:50 PM	0:15	Jake Parsley; Office of International and Interagency Relations (OIIR: NASA/HQ)
Export Control	1:05 PM	0:15	Juan Santos; OIIR (NASA/HQ)
International Space Station	1:20 PM	0:20	Jennifer Williams; ISS Research Integration Office (NASA/JSC)
break	1:40 PM	0:30	
AO-Provided Launch Services for MIDEX	2:10 PM	0:20	Shaun Daly; Launch Services Program (NASA/KSC)
PEA-Provided FAA-Certified Launch Services	2:30 PM	0:20	Shaun Daly
PEA-Provided ESPA Rideshare to LEO or GTO	2:50 PM	0:20	Shaun Daly
break	3:10 PM	0:15	
Q&A	3:25 PM	0:15	
PEA-Provided access to cislunar space using CLPS	3:40 PM	0:20	Jason Jenkins, Program Executive for Exploration, Science Mission Directorate (NASA/HQ)
Adjourn	4:00 PM		



## Astrophysics Explorers: Two Solicitations

2021 Astrophysics Explorers  
Preproposal Conference

### **2021 Medium Explorers Announcement of Opportunity:** 2021 MIDEX AO = NNH21ZDA018O

Solicits proposals for **science investigations**. These must support the goals and objectives of the Explorers Program, and must be implemented by Principal Investigator (PI) led investigation teams, through the provision of **complete spaceflight missions**.

### **2021 Mission of Opportunity:** 2021 MO SALMON-3 PEA Q = NNH17ZDA004O-APEXMO2

Solicits proposals for **Mission of Opportunity (MO) science investigations**. These must support the goals and objectives of the Explorer Program, must be implemented by Principal Investigator (PI) led investigation teams, through the provision of **space investigations**.

**Both are 2-step competitions:** KDP-A is the selection of a Step-1 proposal for a Phase A concept study, KDP-B is the downselection of a mission to enter Phase B following evaluation of Concept Study Reports.

Important Note: These solicitations incorporate many changes relative to the drafts and previous Explorers solicitations, including both policy changes and changes to proposal submission requirements. **All proposers must read the solicitations carefully**, and all proposals must comply with the requirements, constraints, and guidelines contained within.



## Dates and Deadlines

2021 Astrophysics Explorers  
Preproposal Conference

Milestone	Date
Notice of Intent to Propose	October 14, 2021
Proposal Submission Deadline 11:59 pm Eastern time	December 9, 2021
Letters of Commitment due (w/proposal)	December 9, 2021
Deadline for Receipt of CD-ROM at 4:30 p.m. Eastern	December 15, 2021
Step 1 Selections announced, initiate Phase A Concept Studies (target)	Q3 CY 2022
Phase A Concept Study Reports due	9 months later
Down-selection of Investigation(s) for flight (target)	Q1 CY 2024
Launch Readiness Date for MIDEX	NLT Dec 2028
Launch Readiness Date for MO Small Complete Missions	NLT Dec 2027



## MIDEX AO Highlights

2021 Astrophysics Explorers  
Preproposal Conference

### 2021 MIDEX AO is based on the SMD Standard AO template.

- **Requirements** are identified, numbered, and specific.
  - There are 100 requirements in the 2021 MIDEX AO main body
  - When Sections do not levy requirements, they do not have numbered requirements.
- **Evaluation Factors** are identified, numbered, and specific.
  - 3 for Science Merit
  - 5 for Scientific Implementation Merit and Feasibility
  - 5 for Technical, Management, and Cost (TMC) Feasibility
- Appendix B has numbered **requirements on Proposal Preparation**
  - There are 68 specific requirements for the format and content of Step 1 proposals [more altogether, as some Appendix B requirements have more than one part]



## MIDEX AO Highlights

2021 Astrophysics Explorers  
Preproposal Conference

- The PI-Managed Mission Cost (PIMMC) cap for a Medium Explorer (MIDEX) mission is \$300M in Fiscal Year (FY) 2022 dollars, not including standard AO-provided launch services, or any contributions.
- The sum of contributions of any kind to the entirety of the investigation is not to exceed one-third (1/3) of the proposed PIMMC.
- Any selected mission is intended to launch no later than December 2028.
- MIDEX payloads are Class C.
- Proposers selected through this AO will be awarded a contract, capped at \$3M FY2022 dollars, to conduct a 9-month Phase A concept study.
- Launch services **may not** be arranged by the proposer: all access to space will be AO-provided. Standard launch services, as described in the summary document in the Program Library, will be provided at no charge against the PI-Managed Mission Cost. Any additional launch services must be funded out of the PIMCC.





## MO SALMON-3 PEA Q Highlights

2021 Astrophysics Explorers  
Preproposal Conference

---

### 2021 MO PEA Q is an appendix to the SALMON-3 AO.

- **Requirements** are as given in SALMON-3, as amended by PEA Q. The intent has been to standardize the two solicitations such that requirements are the same for the MIDEX AO and the MO PEA. SALMON-3 Appendix B has **requirements on Proposal Preparation**, which are amended by PEA Q:
  - In the event of an apparent conflict between the guidelines, the order of precedence is: the PEA Q, then the SALMON-3 AO
  - The PEA Q has 40 numbered requirements
- **Evaluation Factors** are identified, numbered, and specific. The PEA Q amends some evaluation factors.
  - 3 for Science Merit
  - 5 for Scientific Implementation Merit and Feasibility
  - 5 for Technical, Management, and Cost (TMC) Feasibility



## MO SALMON-3 PEA Q Highlights

2021 Astrophysics Explorers  
Preproposal Conference

---

### **Only Small Complete Missions (SCM) may be proposed.**

- The PI-Managed Mission Cost (PIMMC) cap is \$80M in Fiscal Year (FY) 2022 dollars for Standard Small Complete Missions.
- A PIMMC cap of \$40M (FY2022) defines a **SmallSat** SCM.
- Selected proposers will be awarded a contract, capped at \$750K (FY2022), to conduct a 9-month Phase A concept study.
- Small Complete Missions are Class D, and must be ready to launch by December 2027.

### **Investigations may use PEA-provided access to space, or alternative access arranged by the PI.** Options for PEA-provided access to space include:

- Investigations hosted on the International Space Station
- Investigations deployed to Cislunar Space
- Rideshare payloads utilizing PEA-provided ESPA Access to Low Earth Orbit (LEO) or Geostationary Transfer Orbit (GTO); CubeSats and CubeSat constellations should be packaged for ESPA rideshare
- PEA-provided Commercial FAA-certified launch services
- **Balloon-borne investigations are *not* solicited.**



## MO SALMON-3 PEA Q Cost Caps (PEA Section 5.6.2)

2021 Astrophysics Explorers  
Preproposal Conference

Small Complete Mission Option	PEA Q cost cap (\$ FY22)	Cost to PMICC
Hosted on ISS	\$80M	None
Using PEA-provided access to cislunar space	\$40M	None
SmallSat SCM using PEA-provided ESPA rideshare	\$40M	None
Standard SCM using PEA-provided ESPA rideshare	\$80M	\$4.2M/ESPA port \$6.5M/ESPA Grande port
SCM using PEA-provided Commercial FAA-Licensed Launch Services	\$80M or \$40M	\$9M
SmallSat SCM using non-PEA-provided access to space	\$40M + \$4.2M	PEA Q cost cap is increased by the amount charged to a Standard SCM for one ESPA port
Standard SCM using non-PEA-provided access to space	\$80M	No adjustment to the PEA Q cost cap



## MO: Small Complete Missions on ISS

2021 Astrophysics Explorers  
Preproposal Conference

In addition to requirements given in SALMON-3, all SCM investigations requiring flight on the ISS must also provide a Letter of ISS Technical Interface and Resource Accommodation Feasibility Assessment from the NASA Space Station Research Integration Office containing:

- 1) a preliminary assessment of the feasibility of proposed provisions for access to and accommodation on the ISS,
- 2) identification of known technical interface challenges and/or conditional provisions for access or accommodation, and
- 3) a description of the level of technical interchange and negotiation required to mature the proposed provisions for access and accommodation.



## MO: PEA-provided access to cislunar space

2021 Astrophysics Explorers  
Preproposal Conference

- For single 12U or 27U CubeSats or payloads mounted on an ESPA (but not ESPA Grande), access to cislunar space via the Commercial Lunar Payload Service (CLPS) will be provided at no charge to the PIMMC.

Plans for access to cislunar space are evolving rapidly. **Documents in the Program Library may be updated**, but no later than 30 days before the proposal due date. Proposers are responsible for checking for updates.



## MIDEX and MO: Student Collaboration, Science Enhancement Option, Education, Communication & Public Outreach

Astrophysics Explorers  
Preproposal Conference

- **Evaluation of any proposed Science Enhancement Option** (MIDEX AO Section 5.1.5, MO PEA Section 5.2.4) **and Student Collaboration** (MIDEX AO Section 5.5.3, MO PEA Section 5.5.2) **is deferred to Step 2. No extra pages are allowed in the proposal to describe either one.**
- **No Education Plan is required, nor will one be reviewed if provided.**
- **No information on a Communications and Outreach Program Plan is required for the proposal.** A Communications and Outreach program (previously referred to as Public Outreach) must be developed during Phase B of the mission. The plan must include topline messaging, target audiences, and media processes linked to reaching target audiences, with detailed budgets, milestones, metrics and timelines, and reporting requirements. Mission-related communications are not within the PIMMC, but are funded directly through a NASA center or JPL: see Section 5.5.2 of the MIDEX AO, Section 5.5.1 of the MO PEA.



## MIDEX AO Highlights (MO too!) Be on Time: NOI and Proposals

2021 Astrophysics Explorers  
Preproposal Conference

**Section 6.1.2:** NOIs are REQUIRED. They are due by 11:59pm Eastern time on 14 October 2021, via NSPIRES. Proposals will not be accepted without prior submission of a NOI.

**Requirement 1:** Proposals submitted in response to this solicitation shall be submitted electronically no later than the Electronic Proposal Submittal Deadline (11:59pm Eastern on 9 December)

**Requirement 84:** Every Proposal Team member shall indicate his/her commitment to the proposed investigation and specifically to the role, responsibilities, and participating organization proposed for him/her, through NSPIRES. **The Proposal Team is defined to include... all named Key Management Team members, all Co-Is, and all collaborators.** No institutional letters of commitment are required for the contributed effort of collaborators (MIDEX Section 5.6.7, PEA Section 5.8) .

**Requirement 55:** Proposals shall identify the funding source for each collaborator; the costs shall be included as a contribution in the Total Mission Cost.





## **MIDEX AO Highlights (MO too!) CD-ROMs (or DVD-ROMs)**

2021 Astrophysics Explorers  
Preproposal Conference

**Requirement 99, PEA Q-39:** In addition to electronic submission, two identical, clearly labeled CD-ROMs that contain electronic proposal file(s) and additional files (see Requirement B-6) shall be delivered to the following address by the proposal submittal deadline specified in AO Section 3, PEA Section 9. A DVD-ROM may be used instead of a CD-ROM.

### **Address for delivery of CD-ROMs:**

Science Office for Mission Assessments

Mail Stop 380

6A Langley Boulevard

NASA Langley Research Center

Hampton, VA 23662

ATTN: 2021 Astrophysics Explorers Acquisition Manager

Telephone for commercial delivery: 757-864-3536

**NASA will notify proposers that the CD-ROMs have been received.**





## MIDEX AO Highlights (MO too!) Export-Controlled Material

2021 Astrophysics Explorers  
Preproposal Conference

**Requirement 85:** If the proposal contains export-controlled material, the material shall be printed in a red font or enclosed in a red box. This statement, **with specific references included**, shall be prominently displayed in Section A of the proposal (following the Proposal Summary Information):

“The information (data) contained in **[insert page numbers or other identification]** of this proposal is (are) subject to U.S. export laws and regulations. It is furnished to the Government with the understanding that it will not be exported without the prior approval of the proposer under the terms of an applicable export license or technical assistance agreement. The identified information (data) is (are) printed in a red font and figure(s) and table(s) containing the identified information (data) is (are) placed in a red-bordered box.”

Proposers are **required to be specific** about export-controlled material. Science panels often include non-US scientists. Proposers should expect that **all science reviewers will see a version of the proposal with the export-controlled material removed.**





# Agenda

## 2021 Astrophysics Explorers Preproposal Conference

Topic	Start (Eastern)	Duration	Presenter
1) Conference goals and overview 2) Overview: Evaluation, Categorization, & Selection 3) Science Evaluation	10:00 AM	1:00	Linda Sparke Program Scientist, Astrophysics Division Science Mission Directorate (NASA/HQ)
break	11:00 AM	0:15	
TMC Evaluation	11:15 AM	0:30	Odilyn Luck/Behzad Raiszadeh Astrophysics Explorers Acquisition Manager Science Office for Mission Assessments (NASA/LaRC)
Explorers Program Office Overview	11:45 AM	0:15	Greg Frazier; Explorers Program Office (NASA/GSFC)
break	12:00 PM	0:30	
Mission Operations and Communications Services	12:30 PM	0:20	John Hudiberg, Mission Integration and Commitment Manager, SCA/N, Network Services Division, HEOMD (NASA/HQ)
International Participation	12:50 PM	0:15	Jake Parsley; Office of International and Interagency Relations (OIIR: NASA/HQ)
Export Control	1:05 PM	0:15	Juan Santos; OIIR (NASA/HQ)
International Space Station	1:20 PM	0:20	Jennifer Williams; ISS Research Integration Office (NASA/JSC)
break	1:40 PM	0:30	
AO-Provided Launch Services for MDEX	2:10 PM	0:20	Shaun Daly; Launch Services Program (NASA/KSC)
PEA-Provided FAA-Certified Launch Services	2:30 PM	0:20	Shaun Daly
PEA-Provided ESPA Rideshare to LEO or GTO	2:50 PM	0:20	Shaun Daly
break	3:10 PM	0:15	
Q&A	3:25 PM	0:15	
PEA-Provided access to cislunar space using CLPS	3:40 PM	0:20	Jason Jenkins, Program Executive for Exploration, Science Mission Directorate (NASA/HQ)
Adjourn	4:00 PM		